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# Maine Agricultural Experiment Station

BULLETIN No. 77.

SEPTEMBER 1901.

## FERTILIZER INSPECTION.

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This Bulletin contains the analyses of samples collected by the Station of the brands of Fertilizers licensed in 1901.

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Requests for the Bulletins should be addressed to the  
EXPERIMENT STATION,  
Orono, Maine.

# MAINE

## AGRICULTURAL EXPERIMENT STATION

### ORONO, MAINE.

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## FERTILIZER INSPECTION.

CHAS. D. WOODS, Director.

J. M. BARTLETT, Chemist in charge of Fertilizer Analysis.

The law regulating the sale of commercial fertilizers in this State calls for two bulletins each year. The first of these contains the analyses of the samples received from the manufacturer guaranteed to represent, within reasonable limits, the goods to be placed upon the market later. The second bulletin contains the analyses of the samples collected in the open market by a representative of the Station.

The analyses of the manufacturer's samples for this year were published early in March. The present bulletin contains the analyses of the samples collected by the representative of the Director of the Station.

The figures which are given as the percentages of valuable ingredients guaranteed by the manufacturers are the minimum percentages of the guarantee. If, for instance, the guarantee is 2 to 3 per cent of nitrogen, it is evident that the dealer cannot be held to have agreed to furnish more than two per cent and so this percentage is taken as actual guarantee. The figures under the head of "found" are those showing the actual composition of the samples.

A comparison of the results of the analyses of the samples collected by the Station with the percentages guaranteed by the manufacturers shows, that, as a rule, the fertilizers sold in the State are well up to the guarantee. In a few instances the particular lots of fertilizers sampled are not quite as good as they should be; there is, however, no case which appears to be an attempt to defraud. The comparisons indicate that the manufacturers do not intend to do much more than make good the minimum guarantee and this is all that the purchaser can safely expect.

## DESCRIPTIVE LIST OF STATION SAMPLES, 1901.

| Station number. | Manufacturer, place of business and brand.                | Sampled at         |
|-----------------|---|--------------------|
|                 | AMERICAN AGR. CHEM. CO., NEW YORK, N. Y.                  |                    |
| 2621            | Bradley's Complete Manure for Potatoes and Vegetables.... | Orland.....        |
| 2622            | Bradley's Complete Manure with 10% Potash. . . . .        | Houlton .....      |
| 2624            | Bradley's Corn Phosphate . . . . .                        | Portland .....     |
| 2623            | Bradley's Eureka Fertilizer.....                          | Portland . . . . . |
| 2772            | Bradley's Niagara Phosphate.....                          | Calais. ....       |
| 2625            | Bradley's Potato Fertilizer. ....                         | Portland .....     |
| 2626            | Bradley's Potato Manure. ....                             | Portland .....     |
| 2627            | Bradley's X. L. Superphosphate . . . . .                  | Portland .....     |
| 2628            | Clark's Cove Bay State Fertilizer . . . . .               | Portland .....     |
| 2629            | Clark's Cove Bay State Fertilizer G. G.....               | Portland .....     |
| 2762            | Clark's Cove Great Planet Manure. ....                    | Linneus .....      |
| 2631            | Clark's Cove King Philip Alkaline Guano.....              | Portland .....     |
| 2630            | Clark's Cove Seeding Down Fertilizer... ..                | Portland .....     |
| 2632            | Cleveland High Grade Complete Manure.....                 | Bangor .....       |
| 2633            | Cleveland Potato Phosphate... ..                          | Bangor .....       |
| 2634            | Cleveland Seeding Down Fertilizer.....                    | Portland .....     |
| 2635            | Cleveland Superphosphate.....                             | Portland .....     |
| 2636            | Crocker's Corn Phosphate.....                             | Portland .....     |
| 2637            | Crocker's Grass and Oats Fertilizer.....                  | Portland .....     |
| 2638            | Crocker's New Rival Ammoniated Superphosphate.....        | Portland .....     |
| 2639            | Crocker's Potato, Hop and Tobacco Fertilizer.....         | Portland .....     |
| 2640            | Cumberland Potato Fertilizer.....                         | Portland .....     |
| 2641            | Cumberland Seeding Down Manure.....                       | Portland .....     |
| 2642            | Cumberland Superphosphate.....                            | Portland .....     |
| 2643            | Darling's Blood Bone and Potash . . . . .                 | Houlton .....      |
| 2644            | Great Eastern General Fertilizer.....                     | Portland .....     |
| 2645            | Great Eastern Grass and Oats Fertilizer.....              | Portland .....     |
| 2646            | Great Eastern High Grade Potato Manure . . . . .          | Caribou .....      |
| 2647            | Great Eastern Northern Corn Special.....                  | Portland .....     |
| 2648            | Great Eastern Potato Manure ....                          | Portland .....     |
| 2746            | Otis Potato Fertilizer.....                               | Hallowell .....    |
| 2747            | Otis Seeding Down Fertilizer.....                         | Hallowell .....    |
| 2748            | Otis Superphosphate . . . . .                             | Hallowell .....    |
| 2749            | Pacific Grass and Grain Fertilizer. . . . .               | Dexter .....       |
| 2756            | Pacific High Grade General Fertilizer.....                | Fort Fairfield..   |



## ANALYSIS OF STATION SAMPLES, 1901.

| Station number. | NITROGEN.         |                     |           |                  | PHOSPHORIC ACID. |           |            |            |                  |            |                  |           | POTASH.     |  |
|-----------------|-------------------|---------------------|-----------|------------------|------------------|-----------|------------|------------|------------------|------------|------------------|-----------|-------------|--|
|                 | Soluble in water. | Insoluble in water. | Total.    |                  | Soluble.         | Reverted. | Insoluble. | Available. |                  | Total.     |                  | Found.    | Guaranteed. |  |
|                 |                   |                     | Found.    | Guaran-<br>teed. |                  |           |            | Found.     | Guaran-<br>teed. | Found.     | Guaran-<br>teed. |           |             |  |
| 2621            | %<br>2.18         | %<br>1.37           | %<br>3.55 | %<br>3.30        | %<br>4.91        | %<br>3.87 | %<br>1.95  | %<br>8.78  | %<br>6           | %<br>10.73 | %<br>9           | %<br>7.48 | %<br>7      |  |
| 2622            | 1.50              | 1.79                | 3.29      | 3.30             | 3.92             | 3.22      | 3.19       | 7.14       | 6                | 10.33      | 7                | 9.60      | 10          |  |
| 2624            | .77               | 1.71                | 2.48      | 2.06             | 5.04             | 3.27      | 3.86       | 8.31       | 8                | 12.17      | 10               | 1.88      | 1.5         |  |
| 2623            | .42               | 1.49                | 1.91      | 1.03             | 3.08             | 3.34      | 4.31       | 6.42       | 8                | 10.73      | 9                | 2.57      | 2           |  |
| 2772            | .34               | 1.21                | 1.55      | .82              | 4.82             | 3.32      | 2.58       | 8.14       | 7                | 10.72      | 8                | 1.85      | 1.08        |  |
| 2625            | .88               | 1.19                | 2.07      | 2.06             | 5.63             | 2.54      | 2.36       | 8.17       | 8                | 10.53      | 10               | 3.46      | 3           |  |
| 2626            | .90               | 1.91                | 2.81      | 2.50             | 3.30             | 3.48      | 3.72       | 6.78       | 6                | 10.50      | 7                | 5.30      | 5           |  |
| 2627            | .92               | 1.59                | 2.51      | 2.50             | 6.51             | 3.21      | 2.15       | 9.72       | 9                | 11.87      | 11               | 2.28      | 2           |  |
| 2628            | 1.08              | 1.43                | 2.51      | 2.50             | 7.05             | 3.14      | 1.80       | 10.19      | 9                | 11.99      | 11               | 2.87      | 2           |  |
| 2629            | .79               | 1.55                | 2.34      | 2.06             | 5.15             | 3.53      | 3.14       | 8.68       | 8                | 11.82      | 10               | 1.86      | 1.5         |  |
| 2762            | 1.55              | 1.47                | 3.02      | 3.30             | 5.74             | 2.95      | 3.13       | 8.69       | 8                | 11.72      | 9                | 7.29      | 7           |  |
| 2631            | .40               | .95                 | 1.35      | 1.03             | 5.89             | 2.36      | 2.87       | 8.25       | 8                | 11.12      | 10               | 2.56      | 2           |  |
| 2630            | .56               | .72                 | 1.28      | 1.03             | 2.36             | 8.82      | 1.05       | 11.18      | 8                | 12.23      | 10               | 1.62      | 2           |  |
| 2632            | 2.05              | 1.27                | 3.32      | 3.30             | 6.06             | 3.23      | 1.16       | 9.29       | 8                | 10.45      | 9                | 7.18      | 7           |  |
| 2633            | .52               | 1.51                | 2.03      | 2.06             | 6.08             | 2.95      | 1.37       | 9.03       | 8                | 10.40      | 10               | 3.08      | 3           |  |
| 2634            | .19               | 1.11                | 1.30      | 1.03             | 5.31             | 3.61      | 1.34       | 8.92       | 8                | 10.26      | 10               | 2.00      | 2           |  |
| 2635            | .83               | 1.33                | 2.16      | 2.06             | 4.61             | 4.41      | 2.56       | 9.02       | 8                | 11.58      | 10               | 1.73      | 1.5         |  |
| 2636            | .75               | 1.31                | 2.06      | 2.06             | 5.81             | 2.32      | 2.56       | 8.13       | 8                | 10.69      | 10               | 1.94      | 1.5         |  |
| 2637            | .....             | .....               | .....     | .....            | 5.87             | 5.26      | 2.46       | 11.13      | 11               | 13.59      | 12               | 2.18      | 2           |  |
| 2638            | .60               | 1.31                | 1.91      | 1.03             | 4.59             | 3.59      | 2.09       | 8.18       | 8                | 10.27      | 10               | 2.79      | 2           |  |
| 2639            | .72               | 1.34                | 2.06      | 2.06             | 5.38             | 2.64      | 2.14       | 8.02       | 8                | 10.16      | 10               | 3.08      | 3           |  |
| 2640            | .73               | 1.34                | 2.07      | 2.06             | 4.42             | 4.51      | 1.98       | 8.93       | 8                | 10.91      | 10               | 2.82      | 3           |  |
| 2641            | .29               | 1.05                | 1.34      | 1.03             | 5.58             | 3.26      | 2.12       | 8.84       | 8                | 10.96      | 10               | 2.34      | 2           |  |
| 2642            | .85               | 1.21                | 2.06      | 2.06             | 4.37             | 4.42      | 3.11       | 8.79       | 8                | 11.90      | 10               | 1.98      | 1.5         |  |
| 2643            | 2.72              | 1.43                | 4.15      | 4.10             | 4.50             | 3.65      | 1.29       | 8.15       | 7                | 9.44       | 8                | 7.96      | 7           |  |
| 2644            | .21               | 1.15                | 1.36      | .82              | 5.31             | 3.59      | 1.91       | 8.90       | 8                | 10.81      | 10               | 4.14      | 4           |  |
| 2645            | .....             | .....               | .....     | .....            | 4.98             | 6.07      | 2.86       | 11.05      | 11               | 13.91      | 12               | 2.03      | 2           |  |
| 2646            | 1.96              | 1.71                | 3.67      | 3.30             | 3.86             | 2.85      | 1.74       | 6.71       | 6                | 8.45       | .....            | 10.04     | 10          |  |
| 2647            | .67               | 1.41                | 2.08      | 2.06             | 3.99             | 5.46      | 2.82       | 9.45       | 8                | 12.27      | 10               | 2.18      | 1.5         |  |
| 2648            | .78               | 1.31                | 2.09      | 2.06             | 4.94             | 3.80      | 2.31       | 8.74       | 8                | 11.05      | 10               | 3.51      | 3           |  |
| 2746            | 1.08              | .92                 | 2.00      | 2.06             | 7.02             | 2.06      | 2.74       | 9.08       | 8                | 11.82      | 10               | 3.45      | 3           |  |
| 2747            | .56               | .59                 | 1.15      | 1.03             | 5.85             | 2.36      | 2.57       | 8.21       | 8                | 10.78      | 10               | 2.33      | 2           |  |
| 2748            | 1.28              | .81                 | 2.09      | 2.06             | 6.76             | 2.00      | 2.84       | 8.76       | 8                | 11.60      | 10               | 2.03      | 1.5         |  |
| 2749            | .21               | .97                 | 1.18      | .82              | 3.99             | 3.51      | 2.87       | 7.50       | 7                | 10.37      | 8                | 1.93      | 1           |  |
| 2756            | 1.52              | 1.45                | 2.97      | 2.30             | 6.70             | 2.39      | 3.06       | 9.09       | 8                | 12.15      | 9                | 7.19      | 7           |  |

## DESCRIPTIVE LIST OF STATION SAMPLES, 1901.

| Station number. | Manufacturer, place of business and brand.                      | Sampled at        |
|-----------------|---|-------------------|
| 2649            | Pacific Nobsque Guano.....                                      | Portland .....    |
| 2650            | Pacific Potato Special.....                                     | Portland .....    |
| 2651            | Soluble Pacific Guano. ....                                     | Portland .....    |
| 2652            | Soluble Pacific Guano with 10% Potash.....                      | Ft. Fairfield.... |
| 2653            | Packer's Union Animal Corn Fertilizer.....                      | Portland .....    |
| 2654            | Packer's Union Economical Vegetable Guano.....                  | Bangor .....      |
| 2655            | Packer's Union Gardener's Complete Manure .....                 | Houlton .....     |
| 2656            | Packer's Union Potato Manure.....                               | Portland .....    |
| 2657            | Packer's Union Universal Fertilizer.....                        | Portland .....    |
| 2658            | Packer's Union Wheat, Oats and Clover Fertilizer .....          | Portland .....    |
| 2659            | Quinnipiac Corn Manure .....                                    | Portland .....    |
| 2660            | Quinnipiac Market Garden Manure.....                            | Ft. Fairfield.... |
| 2771            | Quinnipiac Mohawk Fertilizer .....                              | Gray .....        |
| 2661            | Quinnipiac Potato Manure.....                                   | Portland .....    |
| 2662            | Quinnipiac Potato Phosphate .....                               | Portland .....    |
| 2663            | Quinnipiac Seeding Down Manure.....                             | Portland .....    |
| 2664            | Quinnipiac Special with 10% Potash.....                         | Ft. Fairfield.... |
| 2665            | Read's Potato Manure.....                                       | Ft. Fairfield.... |
| 2666            | Read's Practical Potato Special... ..                           | Ft. Fairfield.... |
| 2667            | Read's High Grade Farmer's Friend.....                          | Ft. Fairfield.... |
| 2668            | Read's Vegetable and Vine Fertilizer .....                      | Ft. Fairfield.... |
| 2669            | Standard A. Brand.....  | Portland .....    |
| 2670            | Standard Fertilizer.....  | Portland .....    |
| 2671            | Standard Guano.....   | Portland .....    |
| 2672            | Williams and Clark's Americus Am'n'ted Bone Sup'rphos'ate ..... | Portland .....    |
| 2673            | Williams and Clark's Americus Corn Phosphate .....              | Portland .....    |
| 2675            | Williams and Clark's Americus with 10% Potash .....             | Ft. Fairfield.... |
| 2674            | Williams and Clark's Americus Potato Manure .....               | Portland .....    |
| 2676            | Williams and Clark's Americus Potato Manure .....               | Portland .....    |
| 2677            | Williams and Clark's Potato Phosphate .....                     | Portland .....    |
| 2678            | Williams and Clark's Royal Bone Phosphate for all Crops ..      | Portland .....    |



## ANALYSES OF STATION SAMPLES, 1901.

| Station number. | NITROGEN.         |                     |        |             | PHOSPHORIC ACID. |           |            |            |             |        |             |        | POTASH.     |  |
|-----------------|-------------------|---------------------|--------|-------------|------------------|-----------|------------|------------|-------------|--------|-------------|--------|-------------|--|
|                 | Soluble in water. | Insoluble in water. | Total. |             | Soluble.         | Reverted. | Insoluble. | Available. |             | Total. |             | Found. | Guaranteed. |  |
|                 |                   |                     | Found. | Guaranteed. |                  |           |            | Found.     | Guaranteed. | Found. | Guaranteed. |        |             |  |
|                 | %                 | %                   | %      | %           | %                | %         | %          | %          | %           | %      | %           | %      | %           |  |
| 2649            | .35               | 1.29                | 1.64   | 1.03        | 5.90             | 3.51      | 2.41       | 9.41       | 8           | 11.82  | 10          | 2.55   | 2           |  |
| 2650            | .74               | 1.43                | 2.17   | 2.06        | 5.42             | 3.80      | 1.75       | 9.22       | 8           | 10.97  | 10          | 3.04   | 3           |  |
| 2651            | .63               | 1.85                | 2.48   | 2.06        | 5.87             | 2.70      | 3.19       | 8.57       | 8           | 11.76  | 10          | 1.88   | 1.5         |  |
| 2652            | 1.68              | 1.59                | 3.27   | 2.47        | 3.21             | 3.36      | 2.82       | 6.57       | 6           | 9.39   | 7           | 8.94   | 10          |  |
| 2653            | 1.13              | 1.59                | 2.72   | 2.47        | 6.14             | 2.80      | 2.22       | 8.94       | 9           | 11.16  | 11          | 2.57   | 2           |  |
| 2654            | .49               | 1.31                | 1.80   | 1.25        | 2.11             | 4.45      | 3.30       | 6.56       | 6           | 9.86   | 7           | 3.27   | 3           |  |
| 2655            | 1.28              | 1.03                | 2.31   | 2.47        | 3.86             | 2.74      | 1.53       | 6.60       | 6           | 8.13   | 7           | 10.87  | 10          |  |
| 2656            | .79               | 1.29                | 2.08   | 2.06        | 5.20             | 2.88      | 1.87       | 8.08       | 8           | 9.95   | 10          | 7.95   | 6           |  |
| 2657            | .17               | 1.15                | 1.32   | .82         | 4.96             | 3.22      | 2.01       | 8.18       | 8           | 10.19  | 10          | 4.17   | 4           |  |
| 2658            | .....             | .....               | .....  | .....       | 5.15             | 5.34      | 3.21       | 10.49      | 11          | 13.70  | 12          | 1.99   | 2           |  |
| 2659            | .53               | 1.91                | 2.44   | 2.06        | 5.50             | 2.34      | 3.84       | 7.84       | 8           | 11.68  | 10          | 1.90   | 1.5         |  |
| 2660            | 1.72              | 1.47                | 3.19   | 3.30        | 5.81             | 2.74      | 1.96       | 8.55       | 8           | 10.51  | 9           | 6.69   | 7           |  |
| 2661            | .85               | .83                 | 1.68   | .82         | 2.07             | 5.45      | 4.00       | 7.52       | 7           | 11.52  | 8           | 1.37   | 1           |  |
| 2662            | 1.16              | 1.35                | 2.51   | 2.50        | 3.19             | 2.53      | 3.91       | 5.72       | 6           | 9.63   | 8           | 5.79   | 5           |  |
| 2662            | .25               | 2.05                | 2.30   | 2.06        | 5.82             | 2.36      | 2.57       | 8.18       | 8           | 10.75  | 10          | 3.48   | 3           |  |
| 2663            | .32               | 1.17                | 1.49   | 1.03        | 4.15             | 4.96      | 2.55       | 9.11       | 8           | 11.66  | 10          | 2.51   | 2           |  |
| 2664            | .99               | 1.27                | 2.26   | 2.47        | 4.43             | 2.07      | 1.75       | 6.50       | 6           | 8.25   | 7           | 10.41  | 10          |  |
| 2665            | .96               | 1.27                | 2.23   | 2.47        | 4.10             | 2.50      | 1.60       | 6.60       | 6           | 8.20   | 7           | 10.59  | 10          |  |
| 2666            | .19               | 1.13                | 1.32   | .82         | 2.58             | 2.08      | 2.55       | 4.66       | 4           | 7.21   | 5           | 9.22   | 8           |  |
| 2667            | 1.82              | 1.43                | 3.25   | 3.30        | 4.47             | 2.61      | 2.23       | 7.08       | 6           | 9.31   | 7           | 9.55   | 10          |  |
| 2668            | .90               | 1.25                | 2.15   | 2.06        | 5.50             | 2.49      | 1.93       | 7.99       | 8           | 9.92   | 10          | 6.92   | 6           |  |
| 2669            | .13               | .90                 | 1.03   | .82         | 2.50             | 5.06      | 3.35       | 7.56       | 7           | 10.91  | 8           | 1.46   | 1           |  |
| 2670            | .78               | 1.49                | 2.27   | 2.06        | 4.80             | 3.27      | 3.48       | 8.07       | 8           | 11.55  | 10          | 1.85   | 1.5         |  |
| 2671            | .30               | 1.17                | 1.47   | 1.03        | 6.62             | 2.88      | 2.14       | 9.50       | 8           | 11.64  | 10          | 2.51   | 2           |  |
| 2672            | 1.25              | 1.17                | 2.42   | 2.50        | 6.76             | 3.00      | 1.34       | 9.76       | 9           | 11.10  | 11          | 2.52   | 2           |  |
| 2673            | .53               | 1.87                | 2.40   | 2.06        | 5.82             | 3.53      | 2.60       | 9.35       | 8           | 11.95  | 10          | 1.95   | 1.5         |  |
| 2675            | .82               | 1.61                | 2.43   | 2.47        | 3.49             | 2.67      | 2.36       | 6.16       | 6           | 8.52   | 7           | 11.03  | 10          |  |
| 2674            | .89               | 1.19                | 2.08   | 2.06        | 5.82             | 2.84      | 1.88       | 8.66       | 8           | 10.54  | 10          | 3.09   | 3           |  |
| 2676            | .81               | 1.45                | 2.26   | 2.06        | 5.97             | 2.44      | 2.28       | 8.41       | 8           | 10.69  | 10          | 3.49   | 3           |  |
| 2677            | 1.02              | 1.27                | 2.29   | 2.50        | 3.46             | 2.75      | 3.46       | 6.21       | 6           | 9.67   | 8           | 5.68   | 5           |  |
| 2678            | 1.3               | 1.29                | 1.42   | 1.03        | 6.87             | 3.61      | 1.82       | 10.48      | 8           | 12.30  | 10          | 2.16   | 2           |  |

## DESCRIPTIVE LIST OF STATION SAMPLES, 1901.

| Station number.                                     | Manufacturer, place of business and brand.                     | Sampled at       |
|---|--|------------------|
| <b>THE BOWKER FERTILIZER CO., BOSTON, MASS.</b>     |  |                  |
| 2679  | Bowker's Corn Phosphate.....                                   | Portland.....    |
| 2680  | Bowker's Early Potato Manure .....                             | Portland.....    |
| 2774  | Bowker's Early Potato Manure .....                             | Houlton .....    |
| 2681  | Bowker's Farm and Garden Phosphate.....                        | Portland .....   |
| 2682  | Bowker's Hill and Drill Phosphate .....                        | Portland.....    |
| 2683  | Bowker's Market Garden Fertilizer .....                        | Houlton .....    |
| 2684  | Bowker's Potash Bone.....                                      | Belfast .....    |
| 2690  | Bowker's Potash or Staple Phosphate .....                      | Houlton .....    |
| 2685  | Bowker's Potato and Vegetable Fertilizer.....                  | Houlton .....    |
| 2686  | Bowker's Potato and Vegetable Phosphate.....                   | Houlton .....    |
| 2687  | Bowker's 6% Potato Fertilizer.....                             | Houlton .....    |
| 2689  | Bowker's Square Brand Bone and Potash.....                     | Houlton .....    |
| 2692  | Bowker's Sure Crop Phosphate.....                              | Portland.....    |
| 2693  | Bowker's 10% Manure .....                                      | Presque Isle...  |
| 2694  | Gloucester Fish and Potash.....                                | Belfast.....     |
| 2695  | Stockbridge Corn and Grain Manure.....                         | Portland.....    |
| 2697  | Stockbridge Potato and Vegetable Manure .....                  | Portland .....   |
| 2698  | Stockbridge Seeding Down Manure.....                           | Belfast.....     |
| <b>E. FRANK COE CO., NEW YORK CITY, N. Y.</b>       |  |                  |
| 2730  | E. Frank Coe's Celebrated Special Potato Fertilizer .....      | Portland .....   |
| 2732  | E. Frank Coe's Columbian Corn Fertilizer .....                 | Portland.....    |
| 2731  | E. Frank Coe's Columbian Phosphate.....                        | Belfast.....     |
| 2733  | E. Frank Coe's Columbian Phosphate.....                        | Portland.....    |
| 2734  | E. Frank Coe's Columbian Potato Fertilizer .....               | Belfast.....     |
| 2735  | E. Frank Coe's Excelsior Potato Fertilizer.....                | Belfast.....     |
| 2736  | E. Frank Coe's Famous Grass and Grain Fertilizer .....         | Belfast.....     |
| 2739  | E. Frank Coe's Ground Bone and Potash.....                     | Belfast.....     |
| 2740  | E. Frank Coe's High Grade Ammoniated Bone Superphosphate ..... | Belfast.....     |
| 2741  | E. Frank Coe's High Grade Potato Fertilizer .....              | Portland .....   |
| 2742  | E. Frank Coe's New Englander Corn Fertilizer.....              | Portland.....    |
| 2743  | E. Frank Coe's New Englander Potato Fertilizer .....           | Belfast .....    |
| 2738  | E. Frank Coe's Prize Brand Grain and Grass Fertilizer.....     | Belfast.....     |
| 2744  | E. Frank Coe's Original Ammon. Dissolved Bone Phosphate..      | Belfast .....    |
| 2737  | E. Frank Coe's Red Brand Excelsior Guano.....                  | Portland.....    |
| 2745  | E. Frank Coe's Standard Grade Ammon. Bone Superphosphate ..... | Belfast.....     |
| <b>HENRY ELWELL &amp; CO., NEW YORK, N. Y.</b>      |  |                  |
| 2699  | Elwell's Eureka Fertilizer .....                               | Presque Isle ..  |
| 2700  | Elwell's Excelsior Potato Fertilizer .....                     | Presque Isle ..  |
| <b>LISTER'S AGRICUL. CHEM. WORKS, NEWARK, N. J.</b> |  |                  |
| 2701  | Lister's Animal Bone and Potash No. 2.....                     | Portland .....   |
| 2702  | Lister's High Grade Special for Spring Crops.....              | Fort Fairfield.. |
| 2703  | Lister's Seeding Down Fertilizer.....                          | Portland.....    |
| 2704  | Lister's Special Corn and Potato Fertilizer .....              | Portland.....    |
| 2705  | Lister's Success Fertilizer.....                               | Portland.....    |
| 2706  | Lister's U. S. Superphosphate .....                            | Portland.....    |

## ANALYSES OF STATION SAMPLES, 1901.

| Station number. | NITROGEN.         |                     |        |             | PHOSPHORIC ACID. |           |            |            |             |        |             |        | POTASH.     |  |
|-----------------|-------------------|---------------------|--------|-------------|------------------|-----------|------------|------------|-------------|--------|-------------|--------|-------------|--|
|                 | Soluble in water. | Insoluble in water. | Total. |             | Soluble.         | Reverted. | Insoluble. | Available. |             | Total. |             | Found. | Guaranteed. |  |
|                 |                   |                     | Found. | Guaranteed. |                  |           |            | Found.     | Guaranteed. | Found. | Guaranteed. |        |             |  |
|                 | %                 | %                   | %      | %           | %                | %         | %          | %          | %           | %      | %           | %      | %           |  |
| 2679            | .63               | .93                 | 1.56   | 1.50        | 6.64             | 2.73      | 1.24       | 9.37       | 8           | 10.61  | 10          | 2.31   | 2           |  |
| 2680            | 1.32              | 1.47                | 2.79   | 3.00        | 4.78             | 3.64      | 1.04       | 8.42       | 7           | 9.46   | 9           | 7.37   | 7           |  |
| 2774            | .98               | 1.83                | 2.81   | 3.00        | 3.92             | 3.23      | 3.52       | 7.15       | 7           | 10.67  | 9           | 7.35   | 7           |  |
| 2681            | .36               | 1.11                | 1.47   | 1.50        | 5.93             | 2.79      | 1.91       | 8.71       | 9           | 10.62  | 11          | 2.54   | 2           |  |
| 2682            | .84               | 1.35                | 2.19   | 2.25        | 5.12             | 4.23      | 3.03       | 9.41       | 9           | 12.44  | 11          | 2.23   | 2           |  |
| 2683            | 1.00              | 1.27                | 2.27   | 2.25        | 4.98             | 2.50      | 2.03       | 7.48       | 6           | 9.51   | 7           | 10.85  | 10          |  |
| 2684            | .18               | .81                 | .99    | .75         | 3.46             | 6.19      | 3.14       | 9.65       | 6           | 12.79  | 8           | 1.22   | 2           |  |
| 2690            | .21               | .67                 | .88    | .75         | 4.59             | 3.35      | 3.13       | 7.94       | 8           | 11.07  | 10          | 5.38   | 3           |  |
| 2685            | .71               | 1.39                | 2.10   | 2.25        | 6.89             | 3.28      | 2.14       | 10.17      | 9           | 12.31  | 10          | 4.60   | 4           |  |
| 2686            | .10               | 1.43                | 1.53   | 1.50        | 3.99             | 4.99      | 3.51       | 8.98       | 9           | 12.49  | 11          | 2.06   | 2           |  |
| 2687            | .49               | .41                 | .90    | .75         | 4.15             | 4.16      | 2.52       | 8.31       | 6           | 10.83  | 9           | 6.59   | 6           |  |
| 2689            | .16               | 1.37                | 1.53   | 1.50        | .96              | 5.79      | 6.86       | 6.75       | 6           | 13.61  | 12          | 2.28   | 2           |  |
| 2692            | .29               | .61                 | .90    | .75         | 5.84             | 3.06      | 1.80       | 8.90       | 9           | 10.70  | 11          | 1.96   | 2           |  |
| 2693            | .16               | .59                 | .75    | .75         | 3.83             | 3.72      | 2.71       | 7.55       | 5           | 10.26  | 7           | 9.67   | 10          |  |
| 2694            | .28               | .55                 | .83    | .75         | 2.04             | 4.16      | 2.65       | 6.20       | 6           | 8.85   | 9           | 2.20   | 1           |  |
| 2695            | 1.22              | 1.61                | 2.83   | 3.00        | 4.63             | 3.19      | 1.56       | 7.82       | 7           | 9.38   | 9           | 7.18   | 7           |  |
| 2697            | 1.36              | 1.51                | 2.87   | 3.00        | 5.66             | 1.74      | 1.34       | 7.40       | 6           | 8.74   | 8           | 10.50  | 10          |  |
| 2698            | 1.04              | 1.23                | 2.27   | 2.25        | 5.15             | 2.57      | 2.20       | 7.72       | 6           | 9.92   | 10          | 10.04  | 10          |  |
| 2730            | .91               | .91                 | 1.82   | 1.65        | 6.67             | 2.10      | 1.61       | 8.77       | 8           | 10.38  | 9.5         | 4.07   | 4           |  |
| 2732            | .71               | .71                 | 1.42   | 1.20        | 6.79             | 2.73      | 2.38       | 9.52       | 8.50        | 11.90  | 10          | 2.99   | 2.5         |  |
| 2731            | .45               | 1.19                | 1.64   | 1.20        | 5.09             | 3.33      | 3.32       | 8.42       | 8.50        | 11.74  | 10          | 3.51   | 2.5         |  |
| 2733            | .59               | .95                 | 1.54   | 1.20        | 6.44             | 2.97      | 2.87       | 9.41       | 8.50        | 12.28  | 10          | 2.60   | 2.5         |  |
| 2734            | .29               | .97                 | 1.26   | 1.20        | 4.50             | 4.26      | 3.65       | 8.76       | 8.50        | 12.41  | 10          | 2.43   | 2.5         |  |
| 2735            | 1.27              | 1.19                | 2.46   | 2.40        | 6.06             | 2.06      | 2.28       | 8.12       | 7           | 10.40  | 8.5         | 8.61   | 8           |  |
| 2736            | .45               | .57                 | 1.02   | .80         | 4.07             | 4.52      | 3.24       | 8.59       | 8.50        | 11.83  | 10          | 1.87   | 1.50        |  |
| 2739            | .55               | 1.11                | 1.66   | 2.00        | .22              | 4.92      | 9.47       | 5.14       | .....       | 14.61  | 14          | 3.16   | 2           |  |
| 2740            | .28               | 1.43                | 1.71   | 1.85        | 6.76             | 2.73      | 1.80       | 9.49       | 9           | 11.29  | 13          | 2.51   | 2.25        |  |
| 2741            | .86               | 1.45                | 2.31   | 2.40        | 6.35             | 2.02      | 1.90       | 8.37       | 7.50        | 10.27  | 8.5         | 6.07   | 6           |  |
| 2742            | .45               | .75                 | 1.20   | .80         | 4.88             | 3.56      | 3.25       | 8.44       | 7.50        | 11.69  | 9           | 3.20   | 3           |  |
| 2743            | .50               | .71                 | 1.21   | .80         | 4.91             | 3.43      | 3.19       | 8.34       | 7.50        | 11.53  | 9           | 3.26   | 3           |  |
| 2738            | ....              | ....                | ....   | ....        | 4.90             | 5.09      | 3.73       | 9.99       | 10.50       | 13.72  | 12          | 2.06   | 2           |  |
| 2744            | .36               | .95                 | 1.31   | 1.25        | 5.38             | 2.96      | 3.64       | 8.34       | 9           | 11.98  | 10          | 2.75   | 2.25        |  |
| 2737            | 1.75              | 1.31                | 3.06   | 3.40        | 5.74             | 3.29      | 2.44       | 9.03       | 9           | 11.47  | 10.5        | 7.24   | 6           |  |
| 2745            | .82               | .67                 | 1.49   | 1.50        | 7.02             | 2.39      | 2.30       | 9.41       | 8.50        | 11.71  | 10          | 2.44   | 2           |  |
| 2699            | .96               | 1.01                | 1.97   | 2.00        | 5.60             | 1.99      | 2.09       | 7.59       | 7.00        | 9.68   | 8.5         | 6.83   | 7           |  |
| 2700            | 1.27              | 1.35                | 2.62   | 2.85        | 4.66             | 1.97      | 2.06       | 6.63       | 5.50        | 8.69   | 7           | 9.89   | 10          |  |
| 2701            | .....             | .....               | .....  | .....       | 7.73             | 2.00      | 1.69       | 9.73       | 10          | 11.42  | 11          | 2.53   | 2           |  |
| 2702            | .58               | 1.01                | 1.59   | 1.65        | 6.54             | 2.20      | 1.71       | 8.74       | 8           | 10.45  | 10          | 10.83  | 10          |  |
| 2703            | .25               | .85                 | 1.10   | .83         | 4.04             | 3.66      | 2.57       | 7.70       | 7           | 10.27  | 8           | 1.92   | 1           |  |
| 2704            | .28               | 1.37                | 1.65   | 1.65        | 4.55             | 3.95      | 2.65       | 8.50       | 8           | 11.15  | 9           | 3.33   | 3           |  |
| 2705            | .21               | 1.05                | 1.26   | 1.24        | 5.66             | 3.96      | 2.57       | 9.62       | 9           | 12.19  | 11          | 2.39   | 2           |  |
| 2706            | .33               | 1.33                | 1.66   | 1.03        | 5.76             | 3.62      | 2.42       | 9.38       | 8           | 11.80  | 10          | 2.50   | 2           |  |

## DESCRIPTIVE LIST OF STATION SAMPLES, 1901.

| Station number. | Manufacturer, place of business and brand.                 | Sampled at       |
|-----------------|--|------------------|
|                 | LOWELL FERTILIZER CO., BOSTON, MASS.                       |                  |
| 2763            | Swift's Lowell Animal Brand...                             | Bangor .....     |
| 2764            | Swift's Lowell Bone Fertilizer.....                        | Bangor .....     |
| 2765            | Swift's Lowell Dissolved Bone and Potash.....              | Bangor .....     |
| 2766            | Swift's Lowell Ground Bone.....                            | Bangor .....     |
| 2768            | Swift's Lowell Potato Manure.....                          | Bangor .....     |
| 2769            | Swift's Lowell Potato Phosphate .....                      | Bangor .....     |
|                 | NEW ENGLAND FERTILIZER CO., BOSTON, MASS.                  |                  |
| 2707            | New England Corn Phosphate.....                            | Portland.....    |
| 2708            | New England High Grade Truck Fertilizer.....               | Portland .....   |
| 2709            | New England Potato Fertilizer.....                         | Portland .....   |
|                 | NATIONAL FERTILIZER CO., BRIDGEPORT, CONN.                 |                  |
| 2710            | Chittenden's Ammoniated Bone Phosphate.....                | Ft. Fairfield..  |
| 2711            | Chittenden's Complete Fertilizer .....                     | Houlton .....    |
| 2712            | Chittenden's Market Garden Fertilizer.....                 | Houlton .....    |
| 2775            | Chittenden's Market Garden Fertilizer .....                | Presque Isle ..  |
|                 | PARMENTER & POLSEY FERT. CO., PEABODY, MASS.               |                  |
| 2713            | A. A. Brand Fertilizer.....                                | Presque Isle.... |
| 2714            | P. & P. Potato Fertilizer .....                            | Presque Isle.... |
| 2715            | Plymouth Rock Brand Fertilizer. ....                       | Presque Isle.... |
| 2716            | Special Potato Fertilizer.....                             | Presque Isle.... |
|                 | EDWIN J. PHILBRICK, AUGUSTA, ME.                           |                  |
| 2750            | E. J. Philbrick's High Grade Fertilizer.....               | Augusta .....    |
|                 | PORTLAND RENDERING CO., PORTLAND, ME.                      |                  |
| 2717            | Portland Rendering Co.'s Bone Tankage .....                | Portland.....    |
|                 | PROVINCIAL CHEMICAL CO., L't'd, St. John, N. B.            |                  |
| 2718            | Provincial Chemical Co.'s Special Potato Phosphate.....    | Presque Isle.... |
|                 | RUSSIA CEMENT CO., GLOUCESTER, MASS.                       |                  |
| 2719            | Essex A1 Superphosphate.....                               | Bangor .....     |
| 2720            | Essex Complete Manure for Potatoes, Roots and Vegetables.. | Houlton .....    |
| 2753            | Essex Corn Fertilizer .....                                | Dexter.....      |
| 2721            | Essex Market Garden Potato Manure.....                     | Bangor .....     |
| 2722            | Essex Special Potato Fertilizer for Aroostook Co .....     | Ft. Fairfield... |
| 2723            | Essex XXX Fish and Potash.....                             | Bangor .....     |
| 2751            | Maine State Grange Chemicals.....                          | Dexter.....      |
| 2724            | Maine State Grange Potato Manure .....                     | Houlton .....    |
| 2752            | Maine State Grange Seeding Down Fertilizer.....            | Dexter.....      |
|                 | SAGADAHOC FERTILIZER CO., BOWDOINHAM, ME.                  |                  |
| 2725            | Aroostook Potato Manure. ....                              | Bangor .....     |
| 2726            | Dirigo Fertilizer .....                                    | Caribou.....     |
| 2754            | Sagadahoc Special Potato Fertilizer.....                   | Bowdoinham ..    |
| 2726            | Sagadahoc Superphosphate.....                              | Bangor .....     |
| 2755            | Yankee Fertilizer.....                                     | Bowdoinham ..    |
|                 | JOHN WATSON, HOULTON, ME.                                  |                  |
| 2729            | Watson's Improved High Grade Potato Manure.....            | Houlton .....    |



## ANALYSES OF STATION SAMPLES, 1901.

| Station number. | NITROGEN.         |                     |        |                  | PHOSPHORIC ACID. |           |            |            |                  |        |                  |        | POTASH.     |  |
|-----------------|-------------------|---------------------|--------|------------------|------------------|-----------|------------|------------|------------------|--------|------------------|--------|-------------|--|
|                 | Soluble in water. | Insoluble in water. | Total. |                  | Soluble.         | Reverted. | Insoluble. | Available. |                  | Total. |                  | Found. | Guaranteed. |  |
|                 |                   |                     | Found. | Guaran-<br>teed. |                  |           |            | Found.     | Guaran-<br>teed. | Found. | Guaran-<br>teed. |        |             |  |
|                 | %                 | %                   | %      | %                | %                | %         | %          | %          | %                | %      | %                | %      | %           |  |
| 2763            | .57               | 2.29                | 2.86   | 2.46             | 6.38             | 1.80      | 2.73       | 2.18       | 9                | 10.91  | 10               | 3.98   | 4           |  |
| 2764            | .61               | 1.37                | 1.98   | 1.64             | 3.19             | 4.10      | 2.57       | 7.29       | 2                | 9.86   | 9                | 3.17   | 3           |  |
| 2765            | .82               | 1.05                | 1.87   | 1.64             | 6.09             | 3.59      | 2.03       | 9.68       | 9                | 11.71  | 10               | 2.20   | 2           |  |
| 2766            | .27               | 1.45                | 1.72   | 2.47             | .35              | 1.483     | 14.87      | 15.18      | 5                | 30.05  | 23               | .....  | .....       |  |
| 2768            | .66               | 1.29                | 1.95   | 1.64             | 2.36             | 5.25      | 2.79       | 7.61       | 7                | 10.40  | 8                | 4.56   | 4           |  |
| 2769            | .98               | 1.83                | 2.81   | 2.47             | 6.44             | 1.46      | 1.83       | 7.90       | 2                | 9.73   | 9                | 6.48   | 6           |  |
| 2707            | .76               | 1.15                | 1.91   | 1.64             | 2.74             | 5.86      | 2.22       | 8.10       | 8                | 10.32  | 9                | 3.61   | 3           |  |
| 2708            | 1.20              | 2.19                | 3.39   | 3.30             | 3.97             | 2.11      | 1.24       | 6.08       | 6                | 7.32   | 7                | 10.32  | 10          |  |
| 2709            | .48               | 1.29                | 1.77   | 1.64             | 1.44             | 6.65      | 1.80       | 8.09       | 7                | 9.89   | 8                | 4.52   | 4           |  |
| 2710            | .39               | 1.49                | 1.88   | 1.65             | 7.21             | 2.96      | 2.06       | 10.17      | 8                | 12.23  | 9                | 2.84   | 2           |  |
| 2711            | .36               | 3.11                | 3.47   | 3.00             | 5.95             | 2.18      | 1.61       | 8.13       | 8                | 9.74   | 10               | 6.79   | 6           |  |
| 2712            | 1.18              | 1.27                | 2.45   | 2.45             | 5.28             | 2.12      | 2.22       | 7.40       | 6                | 9.62   | 8                | 5.48   | 5           |  |
| 2775            | .42               | 2.23                | 2.65   | 2.45             | 5.12             | 3.03      | 3.03       | 8.15       | 6                | 11.18  | 8                | 6.14   | 5           |  |
| 2713            | 2.71              | 1.83                | 4.54   | 4.53             | 3.99             | 4.93      | .59        | 8.92       | 7                | 9.51   | 8                | 8.84   | 8           |  |
| 2714            | .48               | 1.27                | 1.75   | 1.64             | 1.99             | 4.37      | 3.96       | 6.36       | 6                | 10.32  | 7                | 6.50   | 6           |  |
| 2715            | 1.28              | 1.43                | 2.71   | 2.47             | 2.34             | 6.19      | 2.92       | 8.53       | 8                | 11.45  | 9                | 5.00   | 4           |  |
| 2716            | 2.07              | 1.29                | 3.36   | 3.29             | 3.22             | 5.25      | 2.17       | 8.47       | 8                | 10.64  | 9                | 7.55   | 7           |  |
| 2750            | .76               | 1.11                | 1.87   | 2.00             | 3.73             | 3.70      | 2.78       | 7.43       | 7                | 10.21  | 9                | 4.90   | 5           |  |
| 2717            | .70               | 3.87                | 4.57   | 4.27             | .45              | 8.87      | 9.55       | 9.32       | 7.34             | 18.87  | 19.40            | .....  | .....       |  |
| 2718            | 1.62              | 1.69                | 3.31   | 3.25             | 6.51             | 1.93      | 5.98       | 8.44       | 8.00             | 14.42  | 10               | 3.41   | 6           |  |
| 2719            | .13               | 1.01                | 1.14   | 1.00             | .80              | 5.53      | 4.91       | 6.33       | 7.00             | 11.24  | 9                | 2.02   | 2           |  |
| 2720            | 1.05              | 3.15                | 4.20   | 3.70             | 5.04             | 3.77      | 1.72       | 8.81       | 7                | 10.53  | 9                | 9.15   | 8.50        |  |
| 2753            | .23               | 1.85                | 2.08   | 2.00             | 2.79             | 5.54      | 4.40       | 8.33       | 9                | 12.73  | 11               | 3.05   | 3           |  |
| 2721            | .76               | 1.63                | 2.39   | 2.00             | 2.79             | 5.31      | 3.32       | 8.10       | 8                | 11.42  | 10               | 6.09   | 5           |  |
| 2722            | .65               | 1.85                | 2.50   | 2.50             | 1.96             | 5.49      | 3.62       | 7.45       | 7                | 11.07  | 9                | 6.03   | 5           |  |
| 2723            | .56               | 1.91                | 2.47   | 2.10             | 2.55             | 5.58      | 4.82       | 8.13       | 9                | 12.95  | 12               | 2.76   | 2.25        |  |
| 2751            | 1.02              | 1.53                | 2.55   | 2.50             | 4.34             | 4.97      | 3.19       | 9.31       | 8                | 12.50  | 12               | 4.45   | 4           |  |
| 2724            | .77               | .91                 | 1.68   | 1.50             | 4.55             | 5.53      | 2.55       | 10.08      | 9                | 12.63  | 12               | 12.69  | 12          |  |
| 2752            | .16               | 1.57                | 1.73   | 1.50             | 1.75             | 6.29      | 5.34       | 8.04       | 7                | 13.38  | 13               | 5.27   | 5.50        |  |
| 2725            | .77               | .59                 | 1.36   | 1.25             | 5.14             | 2.17      | .81        | 7.31       | 5                | 8.12   | 6                | 4.01   | 2.50        |  |
| 2726            | .30               | .89                 | 1.19   | 1.50             | 4.42             | 3.34      | 4.98       | 7.76       | 7                | 12.74  | 11               | 2.73   | 3           |  |
| 2754            | .87               | 1.27                | 2.14   | 2.50             | 1.72             | 4.15      | .30        | 5.87       | 6                | 6.17   | 8                | 10.93  | 7           |  |
| 2728            | 1.04              | 1.05                | 2.09   | 2.00             | 4.50             | 3.87      | 1.63       | 8.37       | 7                | 10.00  | 9                | 3.86   | 3           |  |
| 2755            | .46               | .69                 | 1.15   | .50              | 1.44             | 3.84      | 1.99       | 5.28       | 3                | 7.27   | 5                | 1.26   | .....       |  |
| 2729            | 1.20              | 1.97                | 3.17   | .3               | 2.12             | 4.24      | 3.67       | 6.36       | 6                | 10.03  | 7                | 6.02   | 5           |  |

## COMPARISON OF GUARANTEES AND STATION SAMPLES FOR THREE YEARS.

| Name of Fertilizer.  | NITROGEN.           |            |           | AVAILABLE PHOSPHORIC ACID. |            |           | POTASH.             |            |           |
|--|---------------------|------------|-----------|----------------------------|------------|-----------|---------------------|------------|-----------|
|  | Found.              |            |           | Found.                     |            |           | Found.              |            |           |
|  | Guaranteed in 1901. |            |           | Guaranteed in 1901.        |            |           | Guaranteed in 1901. |            |           |
|  | 1899.               | 1900.      | 1901.     | 1899.                      | 1900.      | 1901.     | 1899.               | 1900.      | 1901.     |
| Bradley's Complete Manure for Potatoes and Vegetables..... | %<br>*3.04          | %<br>*3.06 | %<br>3.30 | %<br>*8.42                 | %<br>*8.70 | %<br>8.78 | %<br>*6.57          | %<br>*7.41 | %<br>7.48 |
| Bradley's Complete Manure with 10% Potash.....             | 2.19                | 2.19       | 3.29      | 9.48                       | 9.41       | 7.14      | 2.19                | 2.19       | 2.19      |
| Bradley's Corn Phosphate .....                             | 1.93                | 1.20       | 2.48      | 5.48                       | 8.18       | 8.31      | 2.16                | 2.25       | 2.57      |
| Bradley's Eureka Fertilizer .....                          | 2.58                | 1.15       | 1.91      | 9.02                       | 8.90       | 8.17      | 3.57                | 3.18       | 3.46      |
| Bradley's Niagara Phosphate.....                           | 2.52                | 2.51       | 2.81      | 6.74                       | 6.48       | 6.78      | 5.87                | 5.58       | 5.30      |
| Bradley's Potato Fertilizer .....                          | *2.28               | 2.51       | 2.50      | *9.74                      | 9.72       | 9.72      | *2.38               | 2.32       | 2.28      |
| Clark's Cove Bay State Fertilizer.....                     | 2.62                | 2.50       | 2.51      | 9.62                       | 9.10       | 10.19     | 1.90                | 2.30       | 2.87      |
| Clark's Cove Bay State Fertilizer, G.G.....                | 2.27                | 2.17       | 2.34      | 9.06                       | 9.65       | 8.68      | 2.24                | 2.08       | 1.86      |
| Clark's Cove DeFiance Complete Manure.....                 | 1.12                | 1.29       | .82       | 8.35                       | 9.08       | 8.69      | 1.20                | 1.80       | 1.0       |
| Clark's Cove Great Planet Manure....                       | *2.82               | 3.02       | 3.30      | *7.52                      | .....      | .....     | *7.13               | .....      | 7.29      |
| Clark's Cove King Philip Alkaline Guano.....               | 1.43                | 1.20       | 1.35      | 8.09                       | 8.49       | 8.25      | 3.26                | 2.16       | 2.56      |
| Clark's Cove Seeding Down Fertilizer .....                 | 1.13                | 1.13       | 1.28      | 8.38                       | 9.10       | 11.18     | 2.61                | 2.47       | 1.62      |
| Cleveland Fertilizer for All Crops.....                    | 1.36                | 1.15       | 1.03      | 8.17                       | 9.37       | .....     | 2.10                | 2.29       | .....     |
| Cleveland High Grade Complete Manure .....                 | .....               | 3.32       | 3.30      | .....                      | .....      | 9.29      | .....               | .....      | 7.18      |
| Cleveland Potato Phosphate.....                            | 2.26                | 2.24       | 2.03      | 8.53                       | 8.82       | 9.03      | 2.86                | 3.29       | 3.08      |
| Cleveland Seeding Down Fertilizer.....                     | 2.08                | 1.23       | 1.30      | 9.80                       | 8.65       | 8.92      | 2.82                | 2.39       | 2.00      |
| Cleveland Superphosphate.....                              | 2.14                | 2.07       | 2.16      | 8.82                       | 8.68       | 9.02      | 2.51                | 1.87       | 1.73      |
| Crocker's Corn Phosphate .....                             | *2.24               | 2.15       | 2.06      | *9.77                      | 9.05       | 8.13      | *1.75               | 2.00       | 1.94      |
| Crocker's Grass and Oats Fertilizer.....                   | 1.00                | .....      | .....     | 9.19                       | 10.29      | 11.13     | 2.81                | 2.11       | 2.18      |



|   |       |       |       |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Crocker's New Rival Ammoniated Superphosphate.....    | *1.45 | 1.03  | 1.91  | †1.03 | *9.33 | 9.64  | 8.18  | 18.0  | *1.74 | 2.06  | 2.79  |
| Crocker's Potato, Hop and Tobacco Fertilizer.....     | *2.21 | *1.90 | 2.06  | †2.06 | *9.09 | *9.01 | 8.02  | 18.0  | *3.29 | *3.34 | †3.0  |
| Cumberland Guano.....                                 | ..... | ..... | ..... | 1.03  | ..... | ..... | ..... | 8.0   | ..... | ..... | 2.0   |
| Cumberland Potato Fertilizer.....                     | 2.06  | *2.08 | 2.07  | 2.06  | 9.00  | *8.98 | 8.93  | 18.0  | 2.90  | *3.16 | 2.82  |
| Cumberland Seeding Down Manure .....                  | 1.20  | 1.24  | 1.34  | 1.03  | 8.67  | 8.69  | 8.84  | 8.0   | 2.43  | 2.27  | 2.34  |
| Cumberland Superphosphate.....                        | 2.06  | 2.14  | 2.06  | 2.06  | 8.89  | 8.65  | 8.79  | 8.0   | 2.63  | 2.32  | 1.98  |
| Darling's Blood, Bone and Potash.....                 | *3.60 | 3.78  | 4.15  | 4.10  | *8.81 | 8.17  | 8.15  | 7.0   | *7.23 | 7.24  | 7.96  |
| Great Eastern General Fertilizer .....                | .94   | 1.02  | 1.36  | .82   | 9.33  | 8.91  | 8.90  | 8.0   | 5.11  | 3.71  | 4.14  |
| Great Eastern Grass and Oats Fertilizer .....         | ..... | ..... | ..... | ..... | 11.61 | 10.17 | 11.05 | 11.0  | 1.80  | 1.97  | 2.03  |
| Great Eastern High Grade Potato Manure .....          | ..... | 3.25  | 3.67  | 3.30  | ..... | 6.98  | 6.71  | 6.0   | ..... | 9.58  | 10.04 |
| Great Eastern Northern Corn Special .....             | 3.09  | 2.12  | 2.08  | †2.06 | 7.31  | 9.04  | 9.45  | 8.0   | 2.64  | 1.51  | †1.50 |
| Great Eastern Potato Manure .....                     | 2.35  | *1.97 | 2.09  | 2.06  | 8.27  | *8.85 | 8.74  | 8.0   | 4.57  | *3.26 | 3.51  |
| Otis Potato Fertilizer.....                           | 2.33  | 2.06  | 2.00  | †2.06 | 9.16  | 8.54  | 9.08  | 18.0  | 3.52  | 3.16  | 3.45  |
| Otis Seeding Down Fertilizer.....                     | 1.26  | 1.14  | 1.15  | †1.03 | 9.34  | 8.23  | 8.21  | 8.0   | 1.89  | 2.40  | 2.33  |
| Otis Superphosphate .....                             | 2.12  | 2.12  | 2.09  | †2.06 | 9.89  | 8.36  | 8.76  | 18.0  | 2.27  | 1.75  | 2.03  |
| Pacific Grass and Grain Fertilizer .....              | 1.24  | 1.24  | 1.18  | .82   | 7.44  | 8.49  | 7.50  | 7.0   | 1.83  | 1.36  | 1.93  |
| Pacific High Grade General Fertilizer.....            | ..... | ..... | 2.97  | 3.30  | ..... | ..... | 9.09  | 8.0   | ..... | ..... | 7.19  |
| Pacific Nobsque Guano.....                            | 1.28  | 1.23  | 1.64  | †1.03 | 8.89  | 8.43  | 9.41  | 8.0   | 2.49  | 2.22  | 2.55  |
| Pacific Potato Special .....                          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7.0   |
| Soluble Pacific Guano .....                           | 2.11  | 2.08  | 2.17  | 2.06  | 10.40 | 9.00  | 9.22  | 8.0   | 3.25  | 2.97  | 3.04  |
| Soluble Pacific Guano with 10% Potash.....            | *2.16 | 2.13  | †2.48 | 2.06  | *9.05 | 8.37  | 8.57  | 18.0  | *2.42 | 1.93  | †1.50 |
| Packer's Union Animal Corn Fertilizer .....           | ..... | ..... | 3.27  | 2.47  | ..... | ..... | 6.57  | 6.0   | ..... | ..... | 8.94  |
| Packer's Union Economical Vegetable Guano .....       | 2.68  | 2.62  | 2.72  | 2.47  | 9.53  | 10.03 | 8.94  | 19.0  | 2.23  | 2.36  | 2.37  |
| Packer's Union Gardeners' Complete Manure .....       | ..... | 1.21  | 1.80  | 1.25  | ..... | 8.78  | 6.56  | 6.0   | ..... | 3.25  | 3.27  |
| Packer's Union Potato Manure.....                     | ..... | ..... | 2.31  | 2.47  | ..... | ..... | 6.60  | 6.0   | ..... | ..... | 10.87 |
| Packer's Union Universal Fertilizer.....              | 2.24  | 2.30  | 2.08  | 2.06  | 8.05  | 9.16  | 8.08  | 8.0   | 6.20  | 6.13  | 7.95  |
| Packer's Union Wheat, Oats and Clover Fertilizer..... | 1.14  | *1.20 | 1.32  | .82   | 9.21  | *8.62 | 8.18  | 8.0   | 5.40  | *3.82 | 4.17  |
| Quinnipiac Climax Phosphate .....                     | ..... | ..... | ..... | ..... | 12.66 | 10.80 | 10.49 | 11.0  | 2.48  | 2.14  | 1.99  |
| Quinnipiac Corn Manure .....                          | 1.16  | 1.47  | ...   | 1.03  | 8.86  | 9.25  | ..... | 8.0   | 2.64  | 2.58  | ..... |
| Quinnipiac Market Garden Manure.....                  | 2.21  | 2.12  | 2.44  | 2.06  | 9.28  | 9.66  | 7.84  | 18.0  | 2.39  | 1.75  | 1.90  |
| Quinnipiac Mohawk Fertilizer .....                    | ..... | ..... | 3.19  | 3.30  | ..... | ..... | 8.55  | 8.0   | ..... | ..... | 6.69  |
| Quinnipiac Phosphate.....                             | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7.0   |
| Quinnipiac Potato Manure .....                        | *2.25 | 2.64  | 1.63  | .82   | ..... | ..... | 7.52  | 7.0   | ..... | ..... | 1.37  |
| .....   | *2.32 | 2.49  | 2.51  | †2.50 | *9.02 | 9.89  | ..... | 9.0   | *2.38 | 2.24  | ..... |
| .....   | ..... | ..... | ..... | ..... | *7.98 | 8.36  | 5.72  | 6.0   | *4.60 | 5.50  | 5.79  |

\* A Average of two analyses.

† Guarantee changed.

COMPARISON OF GUARANTEES AND STATION SAMPLES FOR THREE YEARS—Continued.

| Name of Fertilizer.  | NITROGEN.           |           |           | AVAILABLE PHOSPHORIC ACID. |            |           | POTASH.             |           |           |
|--|---------------------|-----------|-----------|----------------------------|------------|-----------|---------------------|-----------|-----------|
|  | Found.              |           |           | Found.                     |            |           | Found.              |           |           |
|  | Guaranteed in 1901. |           |           | Guaranteed in 1901.        |            |           | Guaranteed in 1901. |           |           |
|  | 1899.               | 1900.     | 1901.     | 1899.                      | 1900.      | 1901.     | 1899.               | 1900.     | 1901.     |
| Quinnipiac Potato Phosphate.....                                   | %<br>*2.11          | %<br>2.18 | %<br>2.30 | %<br>*8.58                 | %<br>10.24 | %<br>8.18 | %<br>*3.01          | %<br>3.20 | %<br>3.48 |
| Quinnipiac Seeding Down Manure. ....                               | 1.24                | 1.26      | 1.49      | 9.71                       | 7.97       | 9.11      | 2.39                | 1.97      | 2.51      |
| Quinnipiac Special with 10% Potash .....                           | .....               | 2.26      | 2.47      | .....                      | .....      | 6.50      | .....               | .....     | 10.41     |
| Read's Potato Manure. ....   | *2.34               | 2.36      | 2.23      | *8.41                      | 7.35       | 6.60      | *10.38              | 10.60     | 10.59     |
| Read's High Grade Farmers' Friend. ....                            | .....               | 3.25      | 3.30      | .....                      | .....      | 7.08      | 9.13                | 8.29      | 9.55      |
| Read's Practical Potato Special .....                              | 1.03                | 1.08      | 1.32      | 4.42                       | 6.11       | 4.66      | .....               | .....     | 10.40     |
| Read's Samson Fertilizer.....                                      | .....               | .....     | *2.06     | 6.62                       | 7.09       | .....     | 4.52                | 4.61      | .....     |
| Read's Standard Fertilizer.....                                    | 1.78                | 1.86      | .....     | 8.09                       | 8.58       | 8.0       | 4.40                | 4.23      | .....     |
| Read's Sure Catch.....   | .....               | .....     | .....     | 6.12                       | 6.61       | *10.0     | 3.62                | 4.18      | .....     |
| Read's Vegetable and Vine Fertilizer.....                          | 1.75                | 2.08      | 2.15      | 6.89                       | 8.61       | 7.99      | 8.96                | 5.85      | 6.92      |
| Standard A Brand.....  | 1.20                | 1.28      | 1.03      | 8.60                       | 7.97       | 7.56      | 1.18                | 1.58      | 1.46      |
| Standard Bone and Potash.....                                      | .....               | .....     | .....     | 10.25                      | .....      | *10.0     | 2.39                | .....     | .....     |
| Standard Complete Manure.....                                      | .....               | 3.34      | .....     | .....                      | 8.30       | .....     | .....               | 7.15      | .....     |
| Standard Fertilizer .....  | 2.21                | 2.32      | 2.27      | 10.09                      | 8.88       | 8.07      | 2.22                | 2.69      | 1.85      |
| Standard Guano.....  | 1.52                | 1.23      | 1.47      | 9.56                       | 8.41       | 9.50      | 3.28                | 2.33      | 2.51      |
| Standard Special for Potatoes .....                                | *2.13               | 2.20      | .....     | *8.40                      | 9.48       | .....     | *3.02               | 3.14      | .....     |
| Williams and Clark's Americus Ammoniated Bone Superphosphate ..... | 2.34                | 2.58      | 2.42      | 10.29                      | 9.67       | 9.76      | 2.36                | 2.49      | 2.52      |
| Williams and Clark's Americus Corn Phosphate. ....                 | *2.29               | 2.20      | 2.40      | *8.87                      | 9.44       | 9.35      | *2.14               | 1.94      | 1.95      |
| Williams and Clark's Americus Potato Manure .....                  | .....               | .....     | .....     | *8.94                      | 8.78       | *8.54     | *2.92               | 3.42      | *3.29     |
| Williams and Clark's Americus with 10% Potash .....                | *2.09               | 2.10      | *2.17     | .....                      | .....      | 6.16      | .....               | .....     | 11.03     |
| Williams and Clark's High Grade Special. ..                        | .....               | 2.43      | 3.30      | .....                      | .....      | .....     | .....               | .....     | 7.0       |

|  |       |       |       |       |       |       |       |       |       |        |       |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|
| Williams and Clark's Potato Phosphate.....                       | 2.48  | 2.36  | 2.29  | †2.50 | 7.63  | 6.14  | 6.21  | 6.0   | 5.14  | 5.94   | 5.68  | 5.0   |
| Williams and Clark's Royal Bone Phosphate.....                   | 1.16  | 1.10  | 1.42  | 1.03  | 9.20  | 9.42  | 10.48 | †8.0  | 2.30  | 2.63   | 2.16  | 2.0   |
| Bowker's Corn Phosphate.....                                     | 1.57  | 1.63  | 1.56  | †1.50 | 7.88  | 8.32  | 9.37  | †8.0  | 2.59  | 2.49   | 2.31  | 2.0   |
| Bowker's Early Potato Manure.....                                | 3.16  | 3.19  | *2.80 | 3.0   | 7.38  | 7.80  | *7.79 | 7.0   | 8.16  | 7.58   | *7.36 | 7.0   |
| Bowker's Farm and Garden Phosphate.....                          | 1.66  | 1.66  | 1.47  | 1.50  | 10.19 | 9.74  | 8.71  | †9.0  | 2.22  | 2.26   | 2.54  | 2.0   |
| Bowker's Hill and Drill Phosphate.....                           | 2.33  | 2.26  | 2.19  | 2.25  | 10.06 | 8.90  | 9.41  | 9.0   | 2.41  | 2.30   | 2.23  | 2.0   |
| Bowker's Market Garden Fertilizer.....                           | 2.74  | ..... | 2.27  | 2.25  | 6.25  | ..... | 7.48  | 6.0   | 10.69 | .....  | 10.85 | 10.0  |
| Bowker's Potash Bone.....  | .86   | .81   | .99   | .75   | 5.87  | 7.72  | 9.65  | 6.0   | 2.26  | 2.57   | 1.22  | 2.0   |
| Bowker's Potash or Staple Phosphate.....                         | 1.03  | .84   | .88   | .75   | 9.62  | 8.82  | 7.94  | 8.0   | 3.15  | 3.28   | 5.38  | 3.0   |
| Bowker's Potato and Vegetable Fertilizer.....                    | 2.38  | 2.51  | 2.10  | 2.25  | 8.41  | 9.62  | 10.17 | †9.0  | 4.12  | 4.58   | 4.60  | 4.0   |
| Bowker's Potato and Vegetable Phosphate.....                     | 1.59  | 1.66  | 1.53  | 1.50  | 9.25  | 10.48 | 8.98  | †9.0  | 2.35  | 2.34   | 2.06  | 2.0   |
| Bowker's 6% Potato Fertilizer.....                               | .99   | .92   | .90   | .75   | 8.36  | 9.06  | 8.31  | †6.0  | 6.37  | 6.18   | 6.59  | 6.0   |
| Bowker's Square Brand Bone and Potash.....                       | 2.07  | 1.85  | 1.53  | 1.50  | 5.98  | 6.65  | 6.75  | 6.0   | 2.41  | 2.51   | 2.28  | 2.0   |
| Bowker's Sure Crop Phosphate.....                                | 1.02  | .96   | .90   | .75   | 9.75  | 9.63  | 8.90  | †9.0  | 2.30  | 2.05   | 1.96  | †2.0  |
| Bowker's 10% Manure.....   | .97   | .82   | .75   | .75   | 6.76  | 6.98  | 7.55  | †5.0  | 10.46 | 10.44  | 9.67  | 10.0  |
| Gloucester Fish and Potash.....                                  | .88   | .84   | .83   | .75   | 9.73  | 10.29 | 6.20  | 6.0   | 1.49  | 1.35   | 2.20  | 1.0   |
| Stockbridge Corn and Grain Manure.....                           | 3.21  | 3.02  | 2.83  | 3.0   | 9.19  | 9.89  | 7.82  | †7.0  | 7.28  | 7.07   | 7.18  | †7.0  |
| Stockbridge Potato and Vegetable Manure.....                     | 3.28  | *3.09 | 2.87  | †3.0  | 6.82  | *7.51 | 7.40  | 6.0   | 11.99 | *10.08 | 10.50 | 10.0  |
| Stockbridge Seeding Down Manure.....                             | 2.74  | 2.05  | 2.27  | †2.25 | 6.75  | 8.61  | 7.72  | 6.0   | 10.60 | 10.22  | 10.04 | 10.0  |
| E. Frank Coe's Celebrated Special Potato Fertilizer.....         | 1.94  | ..... | 1.82  | 1.65  | 9.18  | ..... | 8.77  | 8.0   | 4.21  | .....  | 4.07  | 4.0   |
| E. Frank Coe's Columbian Corn Fertilizer.....                    | 1.50  | 1.19  | 1.42  | †1.20 | 9.85  | 9.06  | 9.52  | 8.50  | 3.03  | 2.55   | 2.99  | 2.50  |
| E. Frank Coe's Columbian Phosphate.....                          | ..... | ..... | *1.59 | 1.20  | ..... | ..... | *8.92 | 8.50  | ..... | .....  | *3.06 | 2.50  |
| E. Frank Coe's Columbian Potato Fertilizer.....                  | 1.33  | 1.42  | 1.26  | 1.20  | 8.95  | 9.34  | 8.76  | 8.50  | 2.91  | 2.81   | 2.43  | 2.50  |
| E. Frank Coe's Excelsior Potato Fertilizer.....                  | 2.69  | *3.81 | 2.46  | †2.40 | 8.25  | *7.72 | 8.12  | †7.0  | 8.09  | *7.57  | 8.61  | 8.0   |
| E. Frank Coe's Famous Grass and Grain Fertilizer.....            | 1.04  | 1.08  | 1.02  | .80   | 9.96  | 9.96  | 8.59  | 8.50  | 2.28  | 2.08   | 1.87  | †1.50 |
| E. Frank Coe's Ground Bone and Potash.....                       | ..... | ..... | 1.66  | 2.00  | ..... | ..... | 5.14  | ..... | ..... | .....  | 3.16  | 2.0   |
| E. Frank Coe's High Grade Ammoniated Bone Superphosphate.....    | 2.14  | 1.97  | 1.71  | 1.85  | 9.47  | 8.68  | 9.49  | 9.0   | 2.66  | 2.72   | 2.51  | 2.25  |
| E. Frank Coe's High Grade Potato Fertilizer.....                 | 2.74  | 2.46  | 2.31  | 2.40  | 8.39  | 7.99  | 8.37  | †7.50 | 6.35  | 6.70   | 6.07  | †6.0  |
| E. Frank Coe's New Englander Corn Fertilizer.....                | ..... | .96   | 1.20  | .80   | ..... | 8.44  | 8.41  | 7.50  | ..... | 3.18   | 3.20  | 3.0   |
| E. Frank Coe's New Englander Potato Fertilizer.....              | 1.07  | 1.03  | 1.21  | .80   | 8.40  | 9.07  | 8.34  | †7.50 | 3.38  | 3.61   | 3.26  | 3.0   |
| E. Frank Coe's Prize Brand Grain and Grass Fertilizer.....       | ..... | ..... | ..... | ..... | 10.65 | 10.36 | 9.99  | 10.50 | 2.26  | 2.26   | 2.06  | 2.0   |
| E. Frank Coe's Original Ammoniated Dissolved Bone Phosphate..... | ..... | ..... | 1.31  | 1.25  | ..... | ..... | 8.34  | 9.0   | ..... | .....  | 2.75  | 2.25  |

† Guarantee changed.

\* Average of two analyses.

COMPARISON OF GUARANTEES AND STATION SAMPLES FOR THREE YEARS—Concluded.

| Name of Fertilizer.   | NITROGEN. |       |       | AVAILABLE PHOSPHORIC ACID. |       |       | POTASH. |       |                     |
|---|-----------|-------|-------|----------------------------|-------|-------|---------|-------|---------------------|
|   | Found.    |       |       | Found.                     |       |       | Found.  |       |                     |
|   | 1899.     | 1900. | 1901. | 1899.                      | 1900. | 1901. | 1899.   | 1900. | 1901.               |
|   |           |       |       |                            |       |       |         |       |                     |
|   | %         | %     | %     | %                          | %     | %     | %       | %     | Guaranteed in 1901. |
| E. Frank Coe's Red Brand Excelsior Guano.....                     | 1.49      | 3.43  | 3.06  | 3.40                       | 8.56  | 9.03  | 6.41    | 7.21  | 6.0                 |
| E. Frank Coe's Standard Grade Ammoniated Bone Superphosphate..... | 1.49      | 1.37  | 1.49  | 1.50                       | 9.91  | 9.41  | 2.45    | 2.44  | 2.0                 |
| Elwell's Eureka Fertilizer.....                                   | .....     | 1.97  | 2.0   | .....                      | ..... | 7.59  | .....   | 6.83  | 7.0                 |
| Elwell's Excelsior Potato Fertilizer.....                         | .....     | 2.66  | 2.62  | 2.85                       | ..... | 6.13  | .....   | 10.68 | 9.89                |
| Lister's Animal Bone and Potash, No. 2.....                       | .....     | ..... | ..... | .....                      | ..... | 9.73  | .....   | 2.53  | 2.0                 |
| Lister's High Grade Special for Spring Crops.....                 | .....     | 1.88  | 1.59  | 1.65                       | ..... | 8.46  | .....   | 10.02 | 10.83               |
| Lister's Seeding Down Fertilizer.....                             | .94       | .81   | 1.10  | 1.83                       | 10.43 | 12.14 | 1.49    | 1.05  | 1.92                |
| Lister's Special Corn and Potato Fertilizer..                     | 1.73      | 1.77  | 1.65  | 1.65                       | 7.92  | 8.95  | 3.51    | *2.98 | 3.33                |
| Lister's Success Fertilizer.....                                  | 1.51      | 1.44  | 1.26  | 1.24                       | 9.51  | 9.89  | 2.54    | 8.10  | 2.39                |
| Lister's U. S. Superphosphate.....                                | 1.49      | 1.42  | 1.66  | 1.03                       | 7.02  | 7.75  | 2.77    | 2.37  | 2.36                |
| Swift's Lowell Animal Brand.....                                  | 2.62      | 2.64  | 2.86  | 2.46                       | 9.25  | 9.64  | 4.59    | 4.13  | 3.98                |
| Swift's Lowell Bone Fertilizer.....                               | 1.76      | 1.75  | 1.98  | 1.64                       | 7.54  | 8.07  | 4.13    | 3.35  | 3.17                |
| Swift's Lowell Dissolved Bone and Potash.....                     | 1.96      | 1.88  | 1.87  | 1.64                       | 8.83  | 9.41  | 2.35    | 2.39  | 2.20                |
| Swift's Lowell Ground Bone.....                                   | 2.08      | 2.04  | 1.72  | 2.47                       | ..... | 13.18 | .....   | ..... | .....               |
| Swift's Lowell Potato Manure.....                                 | .....     | 1.84  | 1.95  | 1.64                       | ..... | 6.99  | .....   | 4.61  | 4.56                |
| Swift's Lowell Potato Phosphate.....                              | 2.56      | 2.54  | 2.81  | 2.47                       | 7.80  | 8.27  | 6.51    | 7.03  | 6.48                |
| New England Corn Phosphate.....                                   | .....     | 1.70  | 1.91  | 1.64                       | ..... | 8.10  | .....   | 3.31  | 3.61                |
| New England High Grade Truck Fertilizer.....                      | .....     | ..... | 3.39  | 3.30                       | ..... | 6.08  | .....   | 10.32 | 10.0                |
| New England Potato Fertilizer.....                                | .....     | *1.82 | 1.77  | 1.64                       | ..... | 8.09  | .....   | *4.24 | 4.52                |
| Chittenden's Ammoniated Bone Phosphate.....                       | 2.04      | 2.12  | 1.88  | 1.65                       | 9.71  | 10.17 | 2.35    | 2.25  | 2.84                |
| Chittenden's Complete Fertilizer.....                             | 3.52      | 3.35  | 3.47  | 3.00                       | 8.14  | 7.72  | 6.27    | 6.14  | 6.79                |



|   |       |       |       |       |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Childenden's Market Garden Fertilizer.....                    | 2.56  | 2.57  | *2.55 | 12.45 | 7.73  | 6.38  | 7.78  | 16.0  | 7.00  | 5.68  | 5.84  |
| A. A. Brand fertilizer.....                                   | 4.21  | ..... | 4.51  | ..... | 8.15  | ..... | 8.92  | 7.0   | 9.46  | ..... | 8.84  |
| P. and P. Grain Grower.....                                   | ..... | ..... | ..... | .82   | ..... | ..... | ..... | 7.0   | ..... | ..... | ..... |
| P. and P. Potato Fertilizer.....                              | 2.26  | 1.97  | 1.75  | 1.64  | 7.00  | 7.94  | 6.36  | 6.0   | 7.63  | 5.66  | 16.0  |
| Plymouth Rock Brand Fertilizer.....                           | 2.67  | 2.90  | 2.71  | 2.47  | 9.94  | 9.30  | 8.53  | 8.0   | 5.02  | 5.11  | 5.00  |
| Special Potato Fertilizer.....                                | 3.27  | 3.49  | 3.36  | 3.29  | 8.57  | 9.65  | 8.47  | 8.0   | 8.30  | 7.47  | 7.55  |
| Star Brand Superphosphate.....                                | 1.78  | 1.95  | ..... | 1.64  | 7.80  | 8.24  | ..... | 7.0   | 3.26  | 3.27  | 2.5   |
| E. J. Philbrick's High Grade Fertilizer.....                  | 2.04  | 1.63  | 1.87  | 2.00  | 6.24  | 7.62  | 7.43  | 7.0   | 6.72  | 6.34  | 4.90  |
| Portland Rendering Co.'s Bone Tankage.....                    | 4.54  | 4.84  | 4.57  | 14.27 | 6.14  | 9.64  | 9.32  | 17.34 | ..... | ..... | ..... |
| Provincial Chemical Co.'s Special Potato Phosphate.....       | ..... | 3.21  | 3.31  | 13.25 | 9.50  | 9.67  | 8.44  | 18.0  | 6.43  | 4.76  | 3.41  |
| Essex AI Superphosphate.....                                  | ..... | ..... | 1.14  | 1.00  | ..... | ..... | 6.33  | 7.0   | ..... | ..... | 2.0   |
| Essex Complete Manure for Corn, Grain and Grass.....          | ..... | 3.84  | ..... | 13.30 | ..... | 8.47  | ..... | 7.0   | ..... | 10.11 | 15.0  |
| Essex Complete Manure for Potatoes, Roots and Vegetables..... | ..... | 3.96  | 4.20  | 3.70  | ..... | 8.15  | 8.81  | 7.0   | ..... | 8.69  | 9.15  |
| Essex Corn Fertilizer.....                                    | ..... | 2.13  | 2.08  | 2.00  | ..... | 8.77  | 8.33  | 9.0   | ..... | 3.41  | 3.65  |
| Essex Market Garden and Potato Manure.....                    | 2.00  | 2.03  | 2.39  | 2.00  | 11.36 | 8.96  | 8.10  | 18.0  | 6.29  | 6.27  | 6.69  |
| Essex Special Fertilizer for Aroostook County.....            | ..... | ..... | 2.50  | 2.50  | ..... | ..... | 7.45  | 7.0   | ..... | 6.03  | 5.0   |
| Essex XXX Fish and Potash.....                                | 2.54  | 2.76  | 2.47  | 2.10  | 10.06 | 9.56  | 8.13  | 9.0   | 2.46  | 2.82  | 2.76  |
| Maine State Grange Chemicals.....                             | 2.53  | 2.84  | 2.55  | 2.50  | 8.69  | 9.35  | 9.31  | 8.0   | 4.31  | 5.44  | 4.45  |
| Maine State Grange Potato Manure.....                         | ..... | 1.68  | 1.68  | 1.50  | 10.84 | 10.96 | 10.08 | 9.0   | 12.47 | 11.16 | 12.69 |
| Maine State Grange Seeding Down Fertilizer.....               | ..... | 1.60  | 1.73  | 1.50  | ..... | 6.86  | 8.04  | 7.0   | ..... | 5.47  | 5.27  |
| Aroostook Potato Manure.....                                  | ..... | ..... | 1.36  | 1.25  | ..... | ..... | 7.31  | 5.0   | ..... | ..... | 4.01  |
| Dirigo Fertilizer.....  | 1.46  | 1.58  | 1.19  | 11.50 | 5.29  | 6.12  | 7.76  | 17.0  | 5.53  | 4.23  | 13.0  |
| Sagadahoc Special Potato Fertilizer.....                      | *2.27 | *1.41 | 2.11  | 12.50 | *8.60 | *9.32 | 5.87  | 16.0  | *8.60 | 9.69  | 10.93 |
| Sagadahoc Superphosphate.....                                 | 2.03  | *1.86 | 2.09  | *2.00 | 8.86  | 8.78  | 8.37  | 17.0  | 6.12  | *4.41 | 3.86  |
| Yankee Fertilizer.....  | 1.06  | 1.02  | 1.15  | 1.50  | 6.11  | 5.20  | 5.28  | 13.0  | 4.39  | 4.90  | 1.26  |
| Watson's Improved High Grade Potato Manure.....               | 2.55  | 2.72  | 3.17  | 13.00 | 6.05  | 5.84  | 6.36  | 6.0   | 5.00  | 4.97  | 5.0   |

\* Average of two analyses.

† Guarantee changed.

## COMPARISON OF GUARANTEES AND STATION SAMPLES FOR THREE YEARS.

It is important for the purchaser of fertilizers to know how the goods have compared with the guarantee, not merely for one year but for several years. Formerly we have printed a table comparing the analysis of the manufacturers' and Station samples for the year with the guarantee. In the table on pages 170 to 175 there is given a comparison of the analyses of the samples collected by the Station for the years 1899, 1900 and 1901 with the guarantee of the manufacturers. When the guarantee has been changed in 1898 from that of the previous years the fact is indicated by a †, and where more than one analysis of the same brand was made in 1898, this is indicated by a \*.

One of the claims which fertilizer manufacturers are making for the superiority of their goods over "home mixed fertilizers" is that the former are "manufactured." This should mean, if it means anything, that the goods are more evenly mixed and therefore more uniform. In some instances in which two or more samples of the same brand have been taken and analyzed, they have been found to differ from each other quite materially. The samples were taken with a great deal of care by experienced men from a large number of packages. It would not seem difficult to make "home mixed fertilizers" which should run as uniform as some of the brands here reported upon.

In studying the table of comparison of guarantees of the Station samples for three years, it will be found that many goods run quite uniform year after year. This is particularly true as regards phosphoric acid and is readily understood when it is remembered that the "superphosphate" is the starting point and that the materials furnishing the nitrogen and potash are added to this. The potash and nitrogen are the more expensive substances in fertilizers and greater variations in composition are found in these constituents.





## THE LAW REGULATING THE SALE OF CONCENTRATED FEEDING STUFFS AND THE PROTECTION OF THE CONSUMER.

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The law regulating the sale of concentrated commercial feeding stuffs has three essential requirements. 1, The proper branding of the goods, including the guarantee of protein and fat, by the manufacturer or dealer. 2, The analyses by the Station of at least one sample each year of this class of foods sold in the State and 3, the payment to the Station by the manufacturer or dealer of a tonnage tax of 10 cents for each ton sold or offered for sale. Points 1 and 2 are for the protection of the consumer, while 3 is to provide the Station with funds necessary to comply with 2 and to see that the manufacturer or dealer conforms with 1.

The red tax tag, which bears the Director's signature, shows that the tax has been paid but is *not a guarantee of the quality of the goods*. The quality of the goods is guaranteed by the manufacturer, importer or dealer, *and not by the Station*. The samples collected and analyzed by the Station show whether the goods are up to guarantee or not.

While it is important that the tax be paid in order that there may be funds for the inspection, the protection of the consumer does not depend upon this but upon 1 and 2. And these are in his own hands. The consumer before he buys can see that the goods are properly branded. After buying he can, if he chooses, send samples to the Experiment Station, where they will be analyzed free of charge and the results promptly reported. This offer has been made by the Station in every feeding stuff publication since August, 1897.

Occasionally the statement is made that the farmer bears the cost of the feeding stuff inspection and that he derives no benefit therefrom. If any user of concentrated foods is not benefitted by the law he has only himself to blame. Even if the official inspection is inadequate the fact remains that any farmer who will take the trouble to read the guarantee and forward samples to the Station can know whether the feeds which he uses are up to guarantee or not.

EIGHTEENTH ANNUAL REPORT

OF THE

# Maine Agricultural Experiment Station

ORONO, MAINE,

1902.

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AUGUSTA  
KENNEBEC JOURNAL PRINT  
1903.

The Bulletins of this Station will be sent free to any address  
in Maine. All requests should be sent to  
Agricultural Experiment Station,  
Orono, Maine.

STATE OF MAINE.

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*Geo. E. Fellows, Ph. D., President of the University of Maine:*

SIR:—I transmit herewith the Eighteenth Annual Report of the Maine Agricultural Experiment Station for the year ending December 31, 1902.

CHARLES D. WOODS,

*Director.*

ORONO, ME., December 31, 1902.

# MAINE

## AGRICULTURAL EXPERIMENT STATION,

### ORONO, MAINE.

#### THE STATION COUNCIL.

|   |   |
|---|---|
| PRESIDENT GEORGE E. FELLOWS . . . . .   | <i>President</i>                              |
| DIRECTOR CHARLES D. WOODS . . . . .     | <i>Secretary</i>                              |
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| CHARLES S. POPE, Manchester . . . . .   | <i>State Pomological Society</i>              |
| RUTILLUS ALDEN, Winthrop . . . . .      | <i>State Dairymen's Association</i>           |
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| FREMONT L. RUSSELL . . . . .            |   |
| WELTON M. MUNSON . . . . .              |   |
| GILBERT M. GOWELL . . . . .             |   |
| GILMAN A. DREW . . . . .                |   |

#### THE STATION STAFF.

##### THE PRESIDENT OF THE UNIVERSITY.

|                                |                                   |
|--------------------------------|-----------------------------------|
| CHARLES D. WOODS . . . . .     | <i>Director</i>                   |
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| LUCIUS H. MERRILL . . . . .    | <i>Chemist</i>                    |
| FREMONT L. RUSSELL . . . . .   | <i>Veterinarian</i>               |
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| GILMAN A. DREW . . . . .       | <i>Zoologist</i>                  |
| * LUCIUS J. SHEPARD . . . . .  | <i>Assistant in Agriculture</i>   |
| † ORA W. KNIGHT . . . . .      | <i>Assistant Chemist</i>          |
| EDWARD R. MANSFIELD . . . . .  | <i>Assistant Chemist</i>          |
| ‡ CLIFFORD D. HOLLEY . . . . . | <i>Assistant Chemist</i>          |
| § HERMAN H. HANSON . . . . .   | <i>Assistant Chemist</i>          |
| HORACE W. BRITCHER . . . . .   | <i>Assistant Zoologist</i>        |
| MARSHALL B. CUMMINGS . . . . . | <i>Assistant in Horticulture</i>  |

\* Resigned February, 1902.

† Resigned June, 1902.

‡ Resigned May, 1902.

§ Appointed July, 1902.



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## ANNOUNCEMENTS.

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### THE AIM OF THE STATION.

Every citizen of Maine concerned in agriculture has the right to apply to the Station for any assistance that comes within its province. It is the wish of the Trustees and Station Council that the Station be as widely useful as its resources will permit.

In addition to its work of investigation, the Station is prepared to make chemical analyses of fertilizers, feeding stuffs, dairy products and other agricultural materials; to test seeds and creamery glass-ware; to identify grasses, weeds, injurious fungi and insects, etc.; and to give information on agricultural matters of interest and advantage to the citizens of the State.

All work proper to the Experiment Station and of public benefit will be done without charge. Work for the private use of individuals is charged for at the actual cost to the Station. The Station offers to do this work only as a matter of accommodation. Under no condition will the Station undertake analyses, the results of which cannot be published, if they prove of general interest.

### INSPECTIONS.

The execution of the laws regulating the sale of commercial fertilizers, concentrated commercial feeding stuffs, and agricultural seeds, and the inspection of chemical glassware used by creameries is entrusted to the Director of the Station. The Station officers take pains to obtain for analysis samples of all brands of fertilizers and feeding stuffs coming under the law, but the organized co-operation of farmers is essential for the full and timely protection of their interests. Granges, Farmers' Clubs and other organizations can render efficient aid by reporting any attempt at evasion of the laws and by sending, early in the sea-

son, samples taken from stock in the market and drawn in accordance with the Station directions for sampling. In case there should be a number of samples of the same brand sent in, the Station reserves the right to analyze only in part.

#### STATION PUBLICATIONS.

The Station publishes several bulletins each year, covering in detail its expenses, operations, investigations and results. The bulletins are mailed free to all citizens who request them.

#### CORRESPONDENCE.

As far as practicable, letters are answered the day they are received. Letters sent to individual officers are liable to remain unanswered, in case the officer addressed is absent. All communications should, therefore, be addressed to the

Agricultural Experiment Station,  
Orono, Maine.

The post office, railroad station, freight, express and telegraph address is Orono, Maine. Visitors to the Station can take the electric cars at Bangor and Old Town.

The telephone call is "Orono 5."

Directions, forms and labels for taking samples, of fertilizers, feeding stuffs and seeds for analysis can be had on application.

Parcels sent by express should be prepaid, and postage should be enclosed in private letters demanding a reply.

CHAS. D. WOODS, *Director*.

LIST OF BULLETINS PUBLISHED IN 1902.

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- 79 Poultry Experiments in 1900 and 1901.
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- 81 Fertilizer Inspection.
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